Impact of the Oregon Health Plan on Access and Satisfaction of Low-Income Adults

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Abstract Page

Objective. To evaluate the effects of the Oregon Health Plan (OHP) on beneficiary access and satisfaction.

Data Sources. Telephone survey of adults in 1998.

Study Design. Two groups of adults were surveyed: OHP enrollees and Food Stamp recipients not enrolled in OHP. The Food Stamp sample included both privately insured and uninsured recipients. This allowed us to disentangle the insurance effects of OHP from other effects such as its reliance on managed care and the priority list. OHP and Food Stamp adults were compared along the following measures: usual source of care, travel and waiting times, utilization of health care services, unmet need, and satisfaction with care.

Data Collection. The survey was conducted by telephone, using computer-assisted telephone interviewing techniques.

Principal Findings. Much of OHP's impact has been realized by its extension of health insurance coverage to Oregon's low-income residents. The availability of health insurance significantly increased the utilization of many health care services and reduced unmet need for care. OHP's greater use of managed care resulted in a higher percentage of enrollees having a usual source of care and higher rates of Pap test screening among women, compared with Food Stamp recipients. OHP enrollees also reported significantly higher use of dental care and prescription drugs, use we attribute to the expanded benefit package under the priority list. At the same time, OHP enrollees reported greater unmet need for prescription drugs. Drug treatment for below-the-line conditions was one reason for this unmet need, but more often the specific drug simply was not in the plan's formulary. OHP enrollees were as satisfied with their health care as those Food Stamp recipients with private health insurance.

Conclusions. Despite the negative publicity prior to its implementation, there is no evidence that "rationing" under OHP's priority list has substantially restricted access to needed services. OHP adults appear to enjoy access equal or better than that of low-income persons with private health insurance, and far greater access than the uninsured. New research is needed to evaluate whether there has been any differential OHP effect on access by the disabled.

Key Words. Medicaid managed care, access to care, insurance expansion

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The Oregon Health Plan (OHP) is Oregon's innovative Medicaid 1115 waiver program. It garnered national attention for its use of a prioritized list of services to define the program's benefit package. The priority list consists of paired medical conditions and treatments that are ranked hierarchically from most to least medically necessary. Covered services are those at or above a cut-off line that is established based on the State's budgetary resources. The use of a priority list was widely condemned by many advocates, physicians, and politicians from both parties (Bodenheimer, 1997; Brown, 1991; Fox and Leichter, 1993; Jacobs, Marmor, and Oberlander, 1999; Steinbrook and Lo, 1993). Of particular concern was the notion that the "rationing" of services via the priority list would be applied only to the poor. Critics worried whether Medicaid beneficiaries in Oregon would receive the care they needed, or whether they would be denied medically necessary services because they were "below the line". The use of a priority list was so controversial that it delayed federal approval of the State's waiver for two years.

While the priority list received the most media attention, there are two other equally important components of OHP. First, OHP expanded Medicaid eligibility to cover all uninsured residents up to 100 percent of the Federal Poverty Level (FPL). This has added an average of 100,000 persons to the State's Medicaid rolls, or an increase of about 25 percent. Second, nearly all OHP beneficiaries have been enrolled in capitated managed care plans. [1]Each one of these three OHP components may have an effect on access to care, and any evaluation of OHP must ideally try to disentangle the differential effects.

How might these different components of OHP affect access? Eligibility expansion is expected to improve access, as previously uninsured individuals presumably faced difficulties obtaining care. Previous research has clearly shown that extending health insurance to the uninsured increases utilization of physician and other services (Bograd *et al.*, 1997; Freeman and Corey, 1993; Hahn, 1994; Long and Marquis, 1998; Martin et al., 1997). The *net* effects of managed care and the priority list are less clear. OHP beneficiaries enrolled in managed care plans may encounter barriers to services requiring prior authorization by their primary care physician, such as specialist referrals. Studies conducted during the early years of Medicaid managed care did find evidence of reduced specialist visits (Freund and Lewit, 1993; Rowland *et al.*, 1995). On the other hand, enrollment in a plan and assignment to a primary care provider may assure access to a usual source of care (Coughlin and Long, 1999; Sisk *et al.*, 1996). Similarly, while implementation of the priority list may restrict access to those services that are below the line, the list itself is based on a far more expansive list of services than had been covered under Oregon's traditional Medicaid program.[2]

In this paper, we evaluate OHP's impact on access for traditional (AFDC, now TANF) Medicaid beneficiaries as well as expansion beneficiaries. These eligibility groups were among the first to be enrolled in OHP in February 1994. Thus, by the time of our survey (1998), OHP was a mature health program, serving these eligibility groups for four years. This paper is limited to the experience of adults. A companion study will examine the OHP experience of children.

Methods

Evaluation Design

The ideal quasi-experimental design would consist of pre and post-OHP measures of access for both OHP beneficiaries and a comparison group of non-OHP enrollees. Unfortunately, it was not possible to collect baseline measures of access prior to implementation of OHP in February 1994. Instead, we adopted a simple point in time comparison of OHP beneficiaries and a comparison group. Selecting a comparison group of low-income adults was challenging. We considered the use of a random-digit dialing approach to identify low-income adults who were not enrolled in OHP, but rejected this strategy because of the very high costs associated with it. Instead, we obtained a list of Food Stamp recipients and excluded those also participating in OHP. The Food Stamp eligibility ceiling is 130 percent of FPL, so our comparison group presumably has average incomes somewhat higher than those of OHP beneficiaries (101-130% of FPL). Because some Food Stamp recipients may have private health insurance, while others remain uninsured, this comparison group has the additional advantage of allowing us to disentangle the "insurance" effect of OHP from other characteristics of OHP (such as managed care and the priority list).

This design has an obvious limitation that may threaten its internal validity, namely selection. If OHP and Food Stamp beneficiaries differ in ways that are correlated with their use of health care services, then our estimated OHP impacts may be biased. We discuss this issue in more detail at the end of this paper.

Sample Selection

Samples of adults aged 19 to 64 were selected from both the OHP and Food Stamp populations. State eligibility files for both programs were used to construct the sampling frames. OHP beneficiaries included those eligible under both the AFDC and the expansion programs. The OHP sampling frame was defined as all persons meeting these eligibility categories as of January 1998 and who had been enrolled in OHP for at least 10 of the preceding 12 months.

The Food Stamp sampling frame was defined as all persons participating in the program as of March 1998 and who had not been enrolled in OHP during the previous 12 months. This was determined by matching the Food Stamp participant file with the OHP eligibility file. Any OHP enrollees inadvertently remaining in the Food Stamp sample were coded as ineligible during the telephone screening process.

There were considerable difficulties and twelve months of negotiations before gaining the State's permission to use the Food Stamp eligibility file for sampling purposes. Over the course of this year, the Food Stamps office in Oregon switched from the traditional method of mailing food stamps to recipients each month to an automated debit card system that kept track of recipients' "accounts". Under the debit card system, a recipient no longer needed to maintain current address information with the State in order to receive food stamp benefits. As a result, both caseworkers and recipients may have been less motivated to keep address records current. This made it much more difficult to locate the Food Stamp sample as will be seen below.

Data Collection

The survey was conducted by telephone, using computer-assisted telephone interviewing (CATI) techniques. Two weeks before data collection began, introductory lead letters were mailed to all sample members to inform them about the survey. Interviews took place between March and October 1998 for the OHP sample and between April and October 1998 for the Food Stamp sample.

Tracing procedures were used for cases that could not be contacted given the information on the sampling frame (eligibility) files. This included cases where the introductory letters were returned due to incorrect address information, cases with no telephone numbers on the sampling files, cases with disconnected or incorrect telephone numbers, and cases that could not be located after repeated call attempts. Tracing procedures included calls to directory assistance and to family members, and electronic searches of commercial databases.

Response Rates and Sample Sizes

A total of 1,205 OHP beneficiaries and 316 Food Stamp recipients responded to the survey, with response rates of 70.2 percent and 32.7 percent, respectively. Despite extensive tracing, many Food Stamp sample members could not be located. Low-income populations tend to be highly mobile and often do not leave forwarding address information. Some sampled members did not have valid social security numbers while others did not have credit histories, and both of these factors complicated the tracing effort. When located, however, almost all eligible respondents participated in the survey.

Only 4.7 percent of sampled OHP beneficiaries and 6.7 percent of sampled Food Stamp recipients refused to participate.

The response rate for the OHP sample is as high (or higher) than those achieved in other published surveys of Medicaid populations (Coughlin and Long, 1999; Sisk et al., 1996). By contrast, the response rate for the Food Stamp sample is only half as high. Because data collection and tracing procedures for the OHP and Food Stamp samples were identical, it would seem that the dramatic difference in their response rates can be attributed to the poorer quality of the addresses in the Food Stamp eligibility file. For this reason, we do not believe that any systematic bias has been introduced as a result of this low response rate.

Among the 316 Food Stamp recipients, just over one-half (160) of the Food Stamp comparison group had private health insurance, almost always through an employer. The remaining 156 recipients were uninsured, and most of them reported that they simply could not afford health insurance. Among those without insurance, 25 percent had been uninsured for less than one year, 50 percent one to five years, 13 percent more than five years, and the remaining 12 percent had never had health insurance. It is worth noting that almost all of the Food Stamp recipients (91%) were familiar with OHP, and that 40 percent of *both* the insured and uninsured had been enrolled in OHP sometime in the past.

The relatively large number of both insured and uninsured Food Stamp recipients effectively provides us with two comparison groups. Comparison of OHP enrollees with uninsured Food Stamp recipients allows us to evaluate the impact of OHP on access,

relative to no insurance whatsoever. Comparison with insured Food Stamp recipients allows us to evaluate OHP's impact, relative to that of private insurance. This latter comparison will capture differences in the benefit package between OHP and commercial health insurance (including the use of the priority list), as well any differences in the use of managed care.

Statistical Tests

Chi-square tests were used to determine the statistical significance of all categorical variables, and t-tests for continuous variables. Logistic regression was used to evaluate OHP impacts, while adjusting for confounding variables like health status. Due to the complex sample design, weighting and standard error adjustments were made using SUDAAN for all analyses.

Results

Descriptive Findings

Sociodemographic Characteristics and Health Status

Table 1 compares sociodemographic characteristics and health status of OHP beneficiaries with insured and uninsured Food Stamp recipients. OHP beneficiaries were significantly more likely to be female and significantly less likely to be married, compared with Food Stamp recipients. This is not surprising, given that one-third of the OHP sample were eligible through the AFDC program (which is largely composed of

single mothers). There were no differences in the average age of OHP and comparison group members.

A surprisingly high proportion of both OHP and comparison group adults reported that they were "currently employed in a job for pay", although the comparison group was significantly more likely to be employed (62-70% vs. 45%). Reflecting the population of the State as a whole, the vast majority of both OHP beneficiaries and Food Stamp recipients reported that they were white and non-Hispanic. There was considerable difference in educational levels, however, with the insured Food Stamp sample significantly better educated compared with OHP adults, and the uninsured sample somewhat less educated.

Finally, there was a marked difference in geographic location, with uninsured Food Stamp recipients more likely to be residing in rural parts of the State. This is consistent with State surveys which have documented higher rates of the uninsured in rural areas (OHPPR, 1999).

The survey collected a variety of measures of health status, including (1) the SF-12 scale for physical health; (2) the SF-12 scale for mental health; and (3) whether a disability or health problem kept the respondent from working. OHP beneficiaries were in significantly poorer health, compared with Food Stamp recipients. They had lower SF-12 scores for physical health than both insured and uninsured Food Stamp recipients, and lower mental health scores than the insured recipients. (Lower scores on the SF-12 indicate poorer health.) Similarly, OHP members were about three times more likely than

those in the comparison groups to report that a disability or health problem kept them from working at a job.

Usual Source of Care and Travel/Waiting Times

OHP beneficiaries were significantly more likely than comparison group members to report that they had a usual source of care, i.e. "a place they usually go to when they are sick or need advice about their health". (See Table 2.) The higher rate for OHP vs. insured Food Stamp recipients may reflect their higher rate of enrollment in a managed care plan; almost all of the OHP sample was enrolled in a managed care plan (97%), compared with about one-half (54%) of the insured comparison group (data not shown). Among those with a usual source of care, the majority of OHP and insured Food Stamp recipients went to a doctor's office or HMO. By contrast, uninsured Food Stamp recipients were significantly more likely to go to a hospital emergency room or "other" type of setting, generally a public health or community health clinic.

Among those with a usual source of care, OHP beneficiaries were significantly more likely than Food Stamp recipients to report that they had a usual health care provider, i.e., "a particular doctor or other medical person that they usually see at this place". Again, the higher rate for OHP adults relative to the insured comparison group presumably reflects their greater managed care enrollment and consequent assignment to a primary care provider.

All respondents with a usual source of care were also asked about travel and waiting times to this usual source. As a rule, there were few differences between OHP members and those in the two comparison groups; however, it is important to keep in

mind that almost one-third of the uninsured Food Stamp group had no usual source of care (and thus did not answer these questions). About one-half of all respondents could reach their usual source of care within 15 minutes, and the vast majority within a half-hour. The majority of both OHP and comparison group members waited less than four days from the time of calling for an appointment when sick until the visit itself. There were significant differences, however, in the amount of time spent waiting in the waiting room and exam room before seeing a doctor or other medical person. Food Stamp recipients reported somewhat longer waits, compared with OHP beneficiaries. The differences were most marked for the uninsured, where 27 percent reported waits of 31 to 60 minutes and another 13 percent waited over an hour (vs. 17 and 5 percent, respectively, for OHP). Most likely, this reflects the relatively larger number of uninsured Food Stamp recipients who used the hospital ER as their usual source of care.

Utilization of Health Care Services

As a rule, utilization of health care services is significantly higher for OHP beneficiaries than for both insured and uninsured comparison group members (see Table 3). In some instances, such as physician visits and hospital admissions, this may be due to the relatively larger number of females in the OHP sample. Women generally use more health care services for men, and those OHP women who are AFDC-eligible may be more likely to have been pregnant over the reporting period. Some services were asked only of women, however, and thus would not be affected. Regression analyses shown later will allow us to hold gender constant, as well as health status and other factors affecting utilization.

The majority of OHP beneficiaries (71%) had seen a physician in the past three months, compared with 58 percent of insured Food Stamp recipients and only 31 percent of uninsured recipients. For those with at least one visit, there were no differences in the number of physician visits during this three-month period (data not shown). While OHP beneficiaries were more likely than comparison group members to have visited the emergency room (ER) during the past three months, these differences were not statistically significant.

Healthy, non-pregnant, adults are unlikely to visit the physician more than once a year, however, and the percent with a physician visit in the past twelve months may be a more reasonable measure for comparison. Although the utilization gap is definitely narrowed, OHP beneficiaries were still significantly more likely to have seen a physician at least once during the past year, especially compared with the uninsured.

Compared with uninsured Food Stamp recipients, OHP members were significantly more likely to have received a routine physical exam during the past 12 months. OHP members were also significantly more likely to have had their blood pressure checked than those in either comparison group.

Two questions were asked of women respondents only: (1) whether they had had a Pap smear in the past 12 months; and for those 40 years or older only, (2) whether they had a mammogram in the past year. Women enrolled in OHP were more likely to have had these screening tests than comparison group women, but the differences were not statistically significant (except for Pap tests, where the OHP-uninsured difference was significant at the .10 level). It may be that we simply lacked the power to detect statistical

significance with our sample sizes. Restricting the sample to women reduced the OHP sample by one-third and the comparison group by half; restricting the sample to women aged 40 and over reduced both samples by an additional 55 percent.

OHP adults were far more likely to have visited a specialist in the past year, compared with Food Stamp recipients, and were twice as likely to have been hospitalized. Specialist visits included visits to OB-GYNs, and hospitalizations included maternity admissions, however, so these differences might be explained by the preponderance of females in the OHP population.

Unlike many private health insurance plans, the Oregon Health Plan covers many dental services for adults. This may explain the significantly higher number of OHP adults who have seen the dentist in the past year. The difference is particularly marked for the uninsured who are only half as likely to have visited the dentist compared with OHP members (25% vs. 57%).

OHP beneficiaries were significantly more likely to have received a prescription for medicine over the past year, compared with Food Stamp recipients. The differences in use are quite high; 86 percent of OHP adults got a prescription, compared with 62 percent of insured Food Stamp adults and only 46 percent of those without insurance. Many factors could contribute to these differences, including medical need, access to a physician to prescribe the drug in the first place, cost of the drug, and insurance coverage. (OHP covers most prescription drugs, but not all commercial policies include drug coverage.) We can control for some, but not all, of these other factors in our regression analyses.

Finally, OHP adults were also more likely to have received mental health care or drug or alcohol treatment, compared with Food Stamp recipients, although the difference was statistically significant only with the insured comparison group. We know that OHP beneficiaries are in poorer mental health (based on their SF-12 scores) than insured Food Stamp recipients, and this may explain the utilization difference. In addition, analyses of encounter data (not shown) found higher rates of perinatal substance abuse services among AFDC beneficiaries.

Unmet Need

While OHP beneficiaries report receiving more health care services than comparison group members, they may still not receive as many as they need or they may encounter difficulties trying to obtain the services they do receive. Respondents were asked how easy or hard it was to get the care they thought they needed over the last 12 months. As shown in Table 4, nearly three-quarters of both OHP and insured Food Stamp adults reported that it was somewhat or very easy to get the care they needed. By contrast, a significantly smaller number of uninsured adults (33%) found that care was easy to get. Note, however, the substantial number of uninsured Food Stamp recipients reporting that they did not need care over the past year: 31 percent vs. 12 percent and 19 percent for OHP and insured Food Stamp adults, respectively.

Respondents were also asked if there was any time during the past 12 months when they needed a specific service, but were not able to get it. Those replying "yes" (needed but did not receive the service) were then asked why they did not get the service. These questions were asked for four services: (1) visit to a medical specialist; (2) visit to

a dentist or dental hygienist; (3) prescription medicine; and (4) mental health care or drug or alcohol treatment.

About one-eighth of OHP beneficiaries (12.8%) reported that they had needed to see a specialist but were not able to, significantly more than insured Food Stamp recipients (7.6%) but significantly fewer than uninsured Food Stamp recipients (29.1%). These uninsured adults overwhelmingly reported that it "cost too much" as the reason they were unable to receive specialist care. By contrast, only one-quarter of OHP adults not receiving specialist care cited costs as the reason. The most frequent reason given (40% of cases) was that the plan or primary care provider would not approve the care.

OHP adults were significantly less likely to report an unmet need for dental care than either of the two comparison groups. The vast majority of both insured and uninsured Food Stamp recipients needing but not receiving dental care cited costs as the reason. As noted earlier, the insured Food Stamp recipients most likely did not have coverage for dental services. OHP adults, who did not receive needed care despite being covered, reported that either they could not find any dentists willing to accept OHP patients or that they were not able to get an appointment within a reasonable amount of time. (Historically, there has been a shortage of Oregon dentists willing to treat Medicaid patients, a problem that continues to exist under OHP.)

About one-sixth of OHP beneficiaries (17%) said they were not able to obtain prescription medicine that they needed, a significantly higher number than the insured comparison group (6%) but a significantly lower number than the uninsured group (26%). These uninsured adults cited costs as the reason for not getting the medicine. Among

those OHP enrollees with an unmet need for prescription medicine, almost two-thirds (61%) said that they did not get the medicine because OHP would not pay for it. The second most frequent reason (20%) was that their primary care physician would not approve the prescription.

Relatively few respondents reported that they needed but did not receive mental health or drug or alcohol treatment. However, OHP beneficiaries were significantly more likely to report such an unmet need, compared with insured Food Stamp recipients. These OHP respondents cited a wide variety of reasons, including lack of OHP approval, lack of physician referral, facility waiting lists, etc. There was no difference in unmet need for mental health or substance abuse treatment between OHP and uninsured comparison group members.

Of course, one reason OHP beneficiaries may not receive needed services may because these services fell "below the line" of the priority list. A separate question in this same survey allowed us to examine this directly, as described in the following section.

Uncovered Services under OHP

All OHP respondents were asked the following question: "As you may know, OHP doesn't pay for all treatments. During the past 12 months, has OHP ever refused to pay for care that your doctor said you needed?" Respondents answering "yes" were then asked the following two open-ended questions: "What treatment was it?" and "Why wouldn't they pay for it?". Using the verbatim responses to both questions, we categorized each individual reporting an uncovered service along two dimensions: (1) the reason for the denial; and (2) the type of service. These are the same categories used in

an earlier study of the priority list based on a similar OHP survey in 1996 (Mitchell and Bentley, 2000). There were four categories for reason for denial:

1. Below-the-line. The service could be clearly identified as being below the cut-off point of the priority list.
2. Managed care. The service was not paid because the respondent did not follow the policies and procedures of the managed care plan (e.g., went to the ER without prior authorization from their primary care physician), or because the specific treatment in question was not covered by the plan (e.g., a particular brand-name drug was not part of the plan's formulary).
3. Other uncovered service. The service was not described in sufficient detail to determine whether it was above or below the cut-off point of the priority list.
4. Unspecified. The respondent could not remember the specific treatment that was not covered.

Services were also classified by type of treatment, e.g., dental care, surgery, etc.

One-quarter (25.2%) of OHP beneficiaries reported that OHP had refused to pay for a treatment that they needed. The most frequent reason for denial was that the treatment was below-the-line (42% of denials, or 10% of all beneficiaries). The majority of the remaining cases were uncovered either because of managed care plans' rules and procedures (33%) or because of some other reason (21%).[3] Table 5 displays a frequency distribution of uncovered services by reason for denial across the service categories we

created. Below-the-line services that were mentioned sufficiently frequently to be identified separately are shown in italics (as subsets of a larger category of service). Prescription drugs were by far the most common uncovered service, accounting for 41.5 percent of all services reported as being denied by OHP. [4] In some instances, the drug treatment was below-the-line and not covered. In most other cases, the managed care plan would not approve a specific brand-name drug or did not include that drug in its formulary (note that drugs account for almost two-thirds of all services denied because of managed care plan policies and procedures).

About one-quarter of services (26.7%) that were uncovered because they were below-the-line were prescription drugs; allergy medications were the single class of drugs most frequently reported in this category. Other frequently mentioned below-the line services were dental care, such as TMJ splints (10%), treatment of back problems, including chiropractic care (15.4%), and physical therapy (20.7%). Hernia repair, whose ranking on the priority list remains somewhat controversial in Oregon, accounted for 3.3 percent of services.

OHP beneficiaries reporting an uncovered service were asked if they "got the service anyway". About one-third of those with a below-the-line service (34%) replied that they had ended up getting the service anyway. In most of these cases, the beneficiary paid for the treatment him or herself. Of those beneficiaries who did not succeed in getting the service anyway, two-thirds (66%) reported that their health "had gotten worse" as a result. These beneficiaries were, in fact, in significantly worse health, compared with other beneficiaries based on their SF-12 scores (data not shown). Unfortunately, we can

not determine causality for two reasons. First, the SF-12 questions captured health status for the four weeks prior to the interview, while the uncovered service question was based on a full twelve months before the interview. Second, OHP beneficiaries without uncovered services may have never sought treatment in the first place (because they were healthy and did not need care).

Satisfaction with Care

OHP beneficiaries were generally far more satisfied than Food Stamp recipients with both the quality of care they received and the depth of their insurance coverage. As shown in Table 6, OHP members were significantly more likely to rate their ability to see "the doctor or other medical person that [they] want to see" as very good or excellent compared with those in either comparison group. (Respondents who had not sought medical care or used a given feature of their health plan are excluded from these ratings.) OHP beneficiaries were also significantly more satisfied with their "ability to see a specialist when needed" than the uninsured, and as satisfied as those with private health insurance.

OHP beneficiaries clearly perceived their insurance coverage for both wellness and illness care as being superior, with about two-thirds rating it as very good or excellent. By contrast, significantly fewer Food Stamp recipients rated their coverage this highly; only one-third reported their coverage for "preventive care and routine visits", and 45 percent their coverage for "treatment when sick", as very good or excellent.

Finally, the majority of OHP beneficiaries stated that they were very satisfied with the overall quality of care they received, significantly more than those in the two comparison groups. Not surprisingly, the uninsured were particularly dissatisfied.

Regression Analyses

Empirical Specification and Estimation

The descriptive results shown earlier demonstrated marked differences in utilization, with OHP beneficiaries consistently using more health care services than uninsured Food Stamp recipients and often more than those with private health insurance as well. However, OHP adults were significantly more likely to be female and in poorer health compared with the two comparison groups, both factors that could explain their higher use rates. In order to test the impact of OHP on access and utilization, we use regression analysis to hold these and other covariates constant.

One regression equation was estimated to determine the odds of having a usual source of care. Twelve similar utilization regressions were estimated to determine the probability of use of different health care services. Finally, another four regressions were estimated to determine the probability of an unmet need for a specific health service. Because all of these dependent variables are bivariate, logistic regression was used for estimation.

Two variables were used to capture the impact of OHP: (1) a health insurance dummy set equal to one for both OHP members and Food Stamp recipients with health insurance; and (2) an OHP dummy variable set equal to one for OHP beneficiaries only. The health insurance dummy variable captures the effect of being insured on access and

use. The OHP variable captures aspects of OHP above and beyond the program as a health insurance plan *per se*. These include, for example, OHP's benefit package (defined by the priority list) and its greater reliance on managed care.[5]

Covariates included sociodemographic and health status characteristics expected to influence demand for health care services. Sociodemographic characteristics included gender (a dummy variable for females), race (a dummy variable for white, non-Hispanic), and age. Age was specified as four dummy variables: age 26 to 34, 35 to 44, 45 to 54, and age 55 to 64. Persons aged 19 to 25 represented the omitted category.[6] Two dummy variables were included for education: (1) whether the respondent had attended and/or graduated from college, and (2) high school graduates (who did not attend college). Dummy variables were also included for marital and employment status.

Three variables were included to measure health status: (1) the SF-12 Physical Health Scale; (2) the SF-12 Mental Health Scale; and (3) whether a disability prevents the respondent from working. This last variable may capture chronic conditions or impairments not captured by either of the SF-12 scales. (The questions that form the basis for these scales are based on self-reported health status for the past four weeks.) Unlike all other variables in the regression equations, the two SF-12 scales are continuous.

Finally, we included two dummy variables for where the respondent lives: residence in an urban area other than Portland and residence in a rural area. Residence in the Portland metropolitan area constituted the omitted category. These geographic location variables are expected to capture the relative availability of providers as well as travel times.

In the tables that follow, we present the odds ratios only for the two OHP impact variables (health insurance coverage and OHP) in order to focus the presentation. When significant, the covariates are nearly always in the expected direction, e.g., persons in poorer health (lower SF-12 scores) are more likely to utilize services and are more likely to report unmet need for services.[7]

Results

Table 7 displays odds ratios for the usual source of care and all of the utilization equations. The availability of health insurance has a powerful effect on the utilization of most medical care services. OHP beneficiaries and Food Stamp recipients with health insurance were both significantly more likely than the uninsured to have a usual source of care, to have seen a physician, received a routine exam and blood pressure check, visited a specialist, seen a dentist, and to have received prescription medicine. The size of the impact is often considerable. OHP and insured Food Stamp adults were three and a half times more likely to have seen a physician during the past year, compared with the uninsured, for example, and more than twice as likely to have seen a dentist.

The absence of an insurance effect on ER use and hospital admission is not surprising. Persons with emergencies and with conditions serious enough to warrant hospitalization appear to get care, regardless of insurance status. Hospitals may also be less apt to turn people away, due to liability concerns. The lack of an insurance effect on Pap test and mammography use, on the other hand, *is* surprising, although we may have simply lacked the power to detect significance. Enrollment in OHP (as distinct from

private health insurance) *does* raise the odds of Pap test use, however, a point we will return to later.

Finally, insurance availability does not affect the utilization of mental health or substance abuse treatment. In part, this may reflect the lack of parity in mental health coverage in many private health insurance plans. However, while OHP does cover many mental health and substance abuse services, the OHP dummy is not significant either.

The OHP dummy variable is positive and significant in four of the twelve utilization equations. Women enrolled in OHP were twice as likely as other women to have received a Pap test in the past year. This is a striking finding, and one that we can probably attribute to the preventive care orientation of managed care. Almost all of the OHP respondents were enrolled in a managed care plan, compared with only about one-half of insured Food Stamp recipients. OHP beneficiaries were also significantly more likely to have made a visit to a specialist (albeit significant only at the 10 percent level), above and beyond the increased odds associated with health insurance *per se*. Given their greater managed care enrollment, we might have expected fewer specialist visits among OHP enrollees. Without knowing the type of specialist visited, it is not clear how to explain this higher rate.

Enrollment in OHP also raises the odds of a dental visit and receiving prescription drugs, again above and beyond the increased odds associated with having health insurance. In both instances, we would attribute this higher use to the richer benefit package of OHP relative to many private health insurance plans. Unlike many private

plans, OHP covers many dental services for adults, as well as prescription drugs for above-the-line conditions.

While the OHP variable is insignificant in the remaining eight regressions, it is important to keep in mind that OHP enrollment does raise the odds of making a physician visit and receiving a routine exam and blood pressure check relative to being uninsured.[8] This effect is being captured by the health insurance variable. To the extent that OHP beneficiaries are disproportionately enrolled in managed care, we might have expected to observe a negative OHP effect on ER and inpatient use. In fact, OHP enrollment has no impact on these services.

Finally, the absence of any OHP impact on mammography use and mental health/substance abuse treatment is surprising (as was the lack of any health insurance effect for these two services). Lack of impact on mental health or substance abuse treatment is particularly surprising, since we believe OHP may have broader coverage of these services than many private health insurance plans.

Table 8 presents odds ratios for the four unmet need equations. Insured respondents (whether insured by OHP or by private health insurance) were significantly less likely to report an unmet need for a specialist visit, prescription medicine, or mental health/substance abuse treatment, compared with the uninsured. The access gap is considerable; adults with health insurance were only one-fifth as likely as the uninsured to report that they needed but did not get a visit to a specialist or a prescription drug.

Although the odds ratio associated with health insurance was less than 1.0 for dental visits, it was not significant at conventional levels (p=0.16.). Unmet need for

dental care was significantly lower for OHP enrollees, however, a finding we attribute to OHP's broader coverage of dental services for adults relative to private health insurance plans.

While the availability of health insurance reduced the odds of unmet need for prescription medicine among all insured respondents, there was a large off-setting effect for OHP beneficiaries. Compared with both insured and uninsured Food Stamp recipients, OHP enrollees were significantly more likely to report that they needed a prescription drug but did not get it. We believe that this is due to two aspects of OHP: (1) the priority list which does not cover prescription drugs for certain conditions, such as allergies; and (2) the formularies of many managed care plans which exclude certain brand-name drugs.

OHP had no additional effect in reducing unmet need for specialists or mental health/substance abuse treatment (above and beyond its role in providing health insurance coverage).

Conclusions and Policy Implications

Summary of Results

There are three principal components of the Oregon Health Plan that may affect access to care: (1) eligibility expansion; (2) mandated managed care enrollment; and (3) the priority list. We summarize our principal findings around each of these components.

Eligibility Expansion

Much of OHP's impact has been realized by the simple extension of health insurance coverage to Oregon's low-income residents. The availability of health insurance coverage significantly increased utilization of many health care services. OHP beneficiaries and Food Stamp recipients with insurance were significantly more likely than the uninsured to have a usual source of care, see a physician, receive routine exams, see a dentist, and receive prescription medicine. The size of this impact was often considerable; health insurance, whether OHP or private, raised the odds of a physician's visit more than three-fold.

Even while OHP and privately insured respondents may receive more health care services than the uninsured, they still may not receive as many as they actually need. Measuring "unmet need" for care may provide a more rigorous test of access under the Oregon Health Plan. Again, health insurance availability played an important role in reducing unmet need for services. Insured adults (whether insured by OHP or by private health insurance) were less likely to report that they had needed but not received a visit to a specialist or dental care, compared with the uninsured.

Managed Care

Like many state Medicaid programs, Oregon has chosen to mandate managed care enrollment for its AFDC and expansion beneficiaries. As noted earlier, research to date comparing Medicaid managed care vs. fee-for-service has been ambiguous, with some studies finding access to some services restricted under managed care, such as specialists (Freund and Lewit, 1993; Rowland *et al.*, 1995), while others show improved access to a

usual source of care (Coughlin and Long, 1999; Sisk *et al.*, 1996). While we could not explicitly test for managed care effects (as virtually all OHP beneficiaries were enrolled in a managed care plan), we did attempt to capture the impact of OHP above and beyond the program's impact as a health insurance plan *per se*. This impact (measured by the OHP dummy variable in our regressions) will include not only managed care effects, but also those of the priority list. In this section, we discuss those impacts that we believe are most likely to be attributed to managed care enrollment. We focus here on differences between OHP beneficiaries and privately insured Food Stamp recipients. While there is considerable managed care penetration in Oregon, OHP beneficiaries were still far more likely than privately insured Food Stamp recipients to be enrolled in a managed care plan (97% vs. 54%).

OHP beneficiaries were twice as likely to have a usual source of care, presumably because enrollment in a managed care plan ensures that a primary care provider is designated for each enrollee. Women enrolled in OHP also were twice as likely as other women to receive a Pap test, a finding that we can probably attribute to the preventive care orientation of managed care. However, OHP enrollment had no impact on the odds that a woman would receive mammography screening. While the small number of women aged 40 years or older in our sample may be partly responsible for this finding, it bears further investigation.

There was no evidence of barriers to access to specialist services under OHP. OHP enrollment actually increased the odds of visiting a specialist over the past year (albeit only at the 10 percent level), and had no effect on unmet need for specialist care.

Perhaps most telling is the fact that the majority of OHP beneficiaries rated their ability to see a specialist when needed as good or excellent, levels equivalent to those of the privately insured.

Priority List

The use of a priority list to define the Medicaid package is the single most distinctive aspect of the Oregon Health Plan. We attempted to measure its impact in two ways: with our OHP dummy variable (which also captures managed care effects) and with a specific question on services denied by OHP. OHP beneficiaries were significantly more likely to have seen a dentist and to have received prescription medicine over the past year, compared with Food Stamp recipients. We attribute this to the inclusion of adult dental services and prescription drugs in the OHP benefit package, benefits often excluded from private health insurance plans. At the same time, adults enrolled in OHP were twice as likely to report that they had needed prescription medicine over the past year but had not been able to receive it. When asked directly if OHP had ever refused to pay for a treatment that they and their doctor thought they needed, prescription medicine was the single most frequently mentioned treatment that OHP would not pay for, sometimes because the drug treatment was below-the-line and hence not covered, but more often because a specific brand-name drug was not authorized by the respondent's managed care plan.

What has been the overall impact of the priority list on OHP members? A relatively large number of beneficiaries appear to be affected; one out of every ten OHP beneficiaries surveyed (10.2%) reported that they had needed a treatment that OHP would

not pay for because the service was below-the-line. However, the majority of these beneficiaries ended up getting the service anyway, usually by paying for it themselves. We do not know the size of these out-of-pocket payments, or what financial burden they imposed on beneficiaries.

Of those not succeeding in obtaining the service, two-thirds (representing 2.7% of all beneficiaries surveyed) reported that their health had gotten worse as a result. It is this small subgroup that is of greatest potential concern to policymakers. We reviewed these individual cases (n=49) and found that allergy medications accounted for about one-half of the services; a wide range of below-the-line services were represented among those remaining. Like the allergy drugs, some of these services appeared relatively minor in nature, e.g., treatment for tendonitis, medication for sinus problems, etc. In other cases, however, the respondents reported treatments denied for potentially more serious conditions, such as inguinal hernia and TMJ malocclusion.

While the priority list has engendered relatively little controversy within Oregon, there has been considerable debate over the denial of surgical treatment of uncomplicated hernias.[9] In 1998, hernia repair for adults was ranked 645 on the list of 743 treatment-condition pairs; the cut-off point was 574. Hernia repair for children was also below-the-line when OHP was first implemented in 1994. There was such public outcry, however, that this condition-treatment pair was quickly moved above the line. While hernia repair for adults continues to remain below-the line, critics have noted that untreated hernias may prevent otherwise able-bodied beneficiaries from working in jobs that require lifting or other strenuous physical activity.

Study Limitations

The lack of baseline measures of access for our OHP and comparison groups is a definite limitation of this evaluation. If OHP and Food Stamp respondents differ in ways that are correlated with their use of health care services, then our estimated OHP effect may be biased. The poorer health status reported by OHP beneficiaries may be an important reason why they enrolled in the program, and uninsured Food Stamp recipients did not. (Some, perhaps many, of these Food Stamp recipients presumably also had incomes just above the OHP eligibility threshold.) While differential health status could introduce selection bias, we have attempted to control for this with three different measures of health status in our multivariate analysis.

Policy Implications

OHP was implemented in February 1994, following a barrage of negative national publicity about the program, all of it focussed on the use of a priority list to set benefit levels. Critics were concerned that "rationing" under the priority list would restrict access to needed services. Four years later by the time of this survey (1998), OHP beneficiaries appear to enjoy access equal or better than that of low-income persons with private health insurance, and far greater access than the uninsured.

Much of the enhanced access under OHP results from the expansion of eligibility to all Oregonians under 100 percent of FPL. In fact, over two-thirds of our sample (68%) were expansion beneficiaries, persons who would not have qualified for coverage under traditional Medicaid criteria. Other aspects of OHP, particularly its coverage of dental

care and prescription drugs, also improved access to care for its enrollees vis-à-vis even privately insured Food Stamp recipients.

State policymakers had intended to finance the eligibility expansion through the use of a priority list and mandatory managed care. In fact, these two components of OHP have generated relatively small, one-time savings (Jacobs *et al.*, 1999). OHP eligibility expansion has been funded largely out of new tobacco taxes. Savings attributable to the priority list were limited in size for two reasons: (1) the most important medical care services are, in fact, above the line; and (2) the list itself was based on an expanded set of benefits than what had previously been available. While the cut-off point has been raised somewhat in the past to offset budget shortfalls, it is unlikely to be moved any further for two reasons. First, HCFA, which must approve such changes as part of Oregon's waiver, has made it clear that it will not allow any further upward movement in the cut-off line. Second, State policymakers themselves have realized that any significant movement would affect such key services as to be politically unacceptable.

Given these factors, it is not surprising that priority list impacts are considerably less than originally feared. Many of the treatments denied payment because they were below-the-line have been associated with relatively minor conditions. Nevertheless, in other cases, the conditions involved were more serious in nature and some respondents reported that their health had grown worse from not receiving the treatment. These cases suggest that access to care under OHP will need to continue to be monitored. Of course, other state Medicaid programs may also deny services through other mechanisms (such as pre-authorization requirements), and we do not know what percent of their beneficiaries

suffer negative health impacts as a result. While OHP thus may appear to be held to a higher standard, such scrutiny is a necessary and appropriate condition of the State's waiver.

It should be noted that our results reflect the experience of only a portion of OHP beneficiaries. Beginning in February 1995, elderly and disabled beneficiaries were also enrolled in OHP. Some of the most vocal criticism of the priority list has focussed on its application to a disabled population. The special health care needs of the disabled may make them particularly vulnerable when services are denied. A new survey of the elderly and disabled (conducted in 1999) will allow us to evaluate whether the priority list (or any other component of OHP) has had a differential impact on access to care for these beneficiaries.

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Endnotes

[1] A proportion of elderly and disabled Medicaid beneficiaries—about 25 percent—have been permitted to remain in fee-for-service. This paper excludes the elderly and disabled.

[2] Prior to OHP, for example, Medicaid did not cover any dental care for adults; under OHP, many dental services are above the line, i.e., they are now covered services. Examples of below the line services are allergy treatment, infant circumcision, and hernia repair in adults.

[3] The remaining 4% were unspecified.

[4] This is in marked contrast to the earlier 1996 survey in which prescription drugs accounted for only 7.5 percent of all uncovered services (Mitchell and Bentley, 2000).

[5] Ideally, we would have included a separate variable to capture managed care. The very high managed care enrollment among OHP beneficiaries (97%) did not allow us to separate out managed care from other OHP effects.

[6] In the Pap test and mammography regression, the female dummy is omitted. The variables for age 26 to 34 and 35 to 44 are also omitted from the mammography regression. In this case, women aged 40 to 43 are the omitted group.

[7] The complete regression results are available from the authors upon request.

[8] Also note that the odds ratios, while not significant at conventional levels, are usually well over 1.0, implying a positive OHP effect on utilization beyond that due to health

insurance coverage alone. We simply may have lacked the power to detect these effects.

[9] Hernia surgery *is* covered for complicated, e.g., gangrenous hernias.

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Table 1

Sociodemographic Characteristics and Health Status

	OHP	Food Stamp Recipients	
		Insured	Uninsured
Female (%)	70.1	54.6**	47.0**
Married (%)	29.2	42.7**	45.2**
Mean Age (years)	39.3	34.3	34.8
Respondent Employed (%)	44.8	69.9**	62.4**
Race/Ethnicity(%)[a]			
White, non-Hispanic	82.1	79.7	81.8
Black, non-Hispanic	3.9	2.8	3.4
Hispanic	5.9	8.6	10.5
Asian	2.2	5.0	0.6
Native American	5.7	3.0	3.0
Other	0.3	0.0	0.7
Education(%)[a]		**	#
Less than high school	24.1	14.3	31.0
High school graduate	40.6	35.6	31.1
Attended college/college graduate	35.3	50.2	37.9
Geographic Residence(%)[a]			*
Tri-County	32.6	28.5	23.6
Other Urban	32.2	32.5	21.2
Rural	35.3	39.0	45.2
SF-12 Score			
Physical Health	44.2	50.1**	48.9**
Mental Health	47.4	51.0**	48.1
Disability Prevents Respondent from Working (% yes)	27.8	8.4**	10.2**

[a] Percentages sum to 100 percent within category by column.
** Significantly different from OHP sample at .01 level.
* Significantly different from OHP sample at .05 level.
# Significantly different from OHP sample at .10 level.

SOURCE: Survey of OHP and Food Stamp beneficiaries, 1998.

Table 2

Usual Source of Care and Travel/Waiting Times

	OHP	Food Stamp Recipients	
		Insured	Uninsured
Has Usual Source of Care (% yes)	95.1	87.3*	68.4**
For Those with a Usual Source, Type(%):[a]			**
Physician or HMO office	71.4	66.4	37.6
Hospital Clinic	16.8	17.1	23.1
Hospital ER	1.8	7.0	14.8
Other	10.0	9.5	24.6
Has A Usual Health Care Provider (% yes)[b]	86.6	73.1*	48.5**
Travel Time (from home to usual source of care) [a, b]		*	
Less than 15 minutes	45.6%	50.2%	42.5%
15 to 30 minutes	41.4	38.0	38.0
31 to 60 minutes	11.5	5.6	16.8
More than 1 hour	1.5	6.2	2.6
Appointment Waiting Time (from time of call to visit for illness) [a, b]			
Don[']t make appointment, just walk in	8.2%	12.6%	17.8%
Less than 4 days	68.3	68.5	62.7
4 to 7 days	14.1	13.7	10.0
8 to 14 days	11.5	3.2	4.9
More than 14 days	1.5	2.0	4.6
Office Waiting Time (time in waiting and exam rooms before seeing doctor) [a, b]		**	*
Less than 15 minutes	26.9%	18.5%	24.3%
15 to 30 minutes	51.5	58.9	35.6
31 to 60 minutes	16.9	21.7	27.2
More than 1 hour	4.7	0.9	12.9

[a] Percentages sum to 100 percent within category by column.
[b] Asked only of respondents with a usual source of care.
** Significantly different from OHP sample at .01 level.
* Significantly different from OHP sample at .05 level.
# Significantly different from OHP sample at .10 level.

SOURCE: Survey of OHP and Food Stamp beneficiaries, 1998.

Table 3

Utilization of Health Care Services

	OHP	Food Stamp Recipients	
		Insured	Uninsured
Percent With Use in Past 3 Months:			
Physician Visit	71.3	57.8**	30.6**
ER Visit	18.3	12.9	12.6
Percent with Use in Past 12 Months:			
Physician Visit	91.0	85.3#	62.9**
Routine Exam	55.7	51.5	34.8**
Blood Pressure Check	88.2	81.2*	64.6**
Pap Test (women only)	60.7	50.4	44.4#
Mammography (women 40 years+ only)	46.0	39.9	31.7
Visit to Specialist	46.7	28.6**	16.2**
Hospital Admission	15.4	8.6**	7.7*
Visit to Dentist	56.6	46.6#	25.4**
Prescription for Medicine	85.6	62.2**	46.2**
Mental Health/Substance Abuse Treatment	17.3	8.9**	11.9

** Significantly different from OHP sample at .01 level.
* Significantly different from OHP sample at .05 level.
# Significantly different from OHP sample at .10 level.

SOURCE: Survey of OHP and Food Stamp beneficiaries, 1998.

Table 4

Unmet Need for Health Care

	OHP	Food Stamp Recipients	
		Insured	Uninsured
How Easy/Hard Was It to Get Care You Think You Needed?[a]			**
Very hard	5.0%	6.9%	18.9%
Somewhat hard	10.6	10.5	16.9
Somewhat easy	26.8	23.2	14.8
Very easy	45.9	40.6	18.2
Did not need care	11.8	18.8	31.2
Needed But Did Not Receive (% yes):			
Visit to Specialist	12.8	7.6#	29.1**
Dental care	15.0	24.7#	36.8**
Prescription medicine	17.3	6.3**	25.7#
Mental health or substance abuse treatment	3.6	1.3*	5.7

[a] Percentages sum to 100 percent within category by column.
** Significantly different from OHP sample at .01 level.
* Significantly different from OHP sample at .05 level.
# Significantly different from OHP sample at .10 level.

SOURCE: Survey of OHP and Food Stamp beneficiaries, 1998.

Table 5

Uncovered Services Under OHP[a]

Service	Reason for Denial: Below-the-Line	Managed Care	Other	All[b]
Prescription Drugs	26.7 %	64.2 %	43.5 %	41.5 %
Allergy drugs	*15.0*	*0.0*	*0.0*	*6.4*
Dental Care	10.0	2.6	11.8	7.6
TMJ splint	*3.2*	*0.0*	*0.0*	*1.4*
Back Treatment	15.4	0.0	1.4	7.2
Chiropractic care	*9.2*	*0.0*	*0.0*	*3.9*
Physical Therapy	20.7	0.9	1.4	9.4
Surgery	8.2	1.7	5.9	5.6
Hernia repair	*3.3*	*0.0*	*0.0*	*1.4*
ER Visits	0.0	14.2	1.6	5.0
Podiatry	6.7	1.2	6.8	4.6
Supplies	0.0	1.8	11.6	4.2
Nicotine patches[c]	0.0	0.0	5.8	*2.1*
Other	12.3	14.4	16.0	14.9

[a] Columns sum to 100 percent.

[b] Includes those services where the reason for denial was unspecified.

[c] Nicotine patches were below the line until May 5, 1997 when they were moved up and became a covered service. We do not know the actual date that survey respondents were told their patches were not covered; hence we do not know why they were denied.

SOURCE: Survey of OHP beneficiaries, 1998.

Table 6

Satisfaction with Care[a]

	OHP	Food Stamp Recipient	
		Insured	Uninsured
Ability to see a chosen doctor		*	**
poor	8.3	9.1	20.4
fair	10.5	23.2	17.3
good	24.4	28.4	33.4
very good /excellent	56.9	39.2	28.8
Ability to see a specialist when needed			**
poor	15.2	10.7	41.3
fair	13.5	20.4	13.8
good	23.3	27.5	27.5
very good /excellent	48.0	41.4	17.4
Coverage for preventive care / routine visits[b]		**	
poor	2.9	10.7	
fair	7.7	20.0	
good	27.3	33.3	
very good /excellent	62.0	36.0	
Coverage for treatment when sick[b]		**	
poor	2.3	6.2	
fair	6.9	15.7	
good	24.8	32.6	
very good /excellent	66.0	45.5	
Overall quality of care		*	**
very dissatisfied	3.0	4.1	11.3
somewhat dissatisfied	7.4	5.0	19.3
somewhat satisfied	25.3	46.0	27.6
very satisfied	64.3	44.9	41.8

[a] Only respondents who had sought a specific type of care were asked to rate their satisfaction. Column percentages sum to 100% by rating category.

[b] The uninsured were not asked these questions.

** Significantly different from OHP sample at .01 level.

* Significantly different from OHP sample at .05 level.

Significantly different from OHP sample at .10 level.

SOURCE: Survey of OHP and Food Stamp beneficiaries, 1998.

Table 7

Logistic Regression Results for Health Care Utilization

	Health Insurance	OHP
Usual Source of Care	3.40**	2.05*
Physician Visit in Past 3 Months	3.66**	1.22
Physician Visit in Past 12 Months	3.59**	1.63
Routine Exam	1.75#	1.06
Blood Presure Check	2.36*	1.41
Specialist Visit	2.06#	1.66#
ER Visit Past 3 Months	1.10	1.11
Hospital Admission	1.12	1.55
Pap Test	0.91	2.04*
Mammogram	1.90	0.88
Dentist Visit	2.22*	1.66*
Prescription Medicine	2.02*	3.07**
Mental Health/Substance Abuse Treatment	0.90	1.30

NOTE: Covariates included age, race, gender, health status, education, employment status, marital status, and geographic location.

** Significant at .01 level.

* Significantl at .05 level.

Significantl at .10 level.

SOURCE: Survey of OHP and Food Stamp beneficiaries, 1998.

Table 8

Unmet Need Logistic Regressions

	Health Insurance	OHP
Specialist Visit	0.21**	1.22
Dental Care	0.62	0.44**
Prescription Medicine	0.18**	2.04*
MH/SA Treatment	0.25#	1.83

NOTE: Covariates included age, race, gender, health status, education, employment status, marital status, and geographic location.

** Significant at .01 level.
* Significant at .05 level.
# Significant at .10 level.

SOURCE: Survey of OHP and Food Stamp beneficiaries, 1998.

Table A-1

Logistic Regression Results for Utilization by Adults

	Usual Source of Care	Physician Visit in Past 3 Months	Physician Visit in Past 12 Months	Routine Exam	BP Check
Health Insurance	3.40**	3.66**	3.59**	1.75#	2.36*
OHP	2.05*	1.22	1.63	1.06	1.41
Female	2.30**	2.13**	1.78**	1.57**	1.97**
Age:					
26-34	2.04#	1.08	1.25	1.28	0.89
35-44	2.07#	0.77	0.55	0.75	0.53#
45-54	4.66**	0.92	0.48#	1.23	1.15
55-64	2.92*	0.87	0.62	1.42	0.79
White	0.70	1.17	1.10	0.91	1.37
Married	1.25	1.07	0.90	0.98	0.85
Employed	1.16	1.23	1.52#	1.22	1.61*
Education:					
College	0.86	1.01	1.07	1.31	1.32
High School Grad	0.83	1.17	1.10	1.43#	1.31
SF-12: Physical Health	1.01	0.96**	0.95**	1.00	0.96**
SF-12: Mental Health	0.99	0.98	0.97**	1.00	0.97**
Disability Prevents Work	2.37#	2.72#	1.35	1.65*	1.18*
Residence:					
Urban (except Portland)	1.06	0.94	0.86	0.85	0.75
Rural	0.80	0.90	0.07	0.77	0.76

Table A-1 (continued)

Logistic Regression Results for Utilization by Adults

	ER Visits Past 3 Months	Specialist Visit	Hospital Admit	Pap Test	Mammogram
Health Insurance	1.10	2.06#	1.12	0.91	1.90
OHP	1.11	1.66#	1.55	2.04*	0.88
Female	0.68#	1.12	1.20	--	--
Age:					
26-34	0.74	0.95	0.63	0.59#	--
35-44	0.48**	0.68#	0.34**	0.36**	--
45-54	0.24**	0.95	0.42**	0.54*	1.76*
55-64	0.20**	0.90	0.35**	0.25**	2.04*
White	0.92	1.19	0.65	1.05	0.75
Married	0.59*	1.05	0.98	0.69#	0.85
Employed	0.90	1.08	0.75	0.88	0.85
Education:					
College	0.95	1.24	0.83	1.30	1.03
High School Grad	1.03	1.12	0.85	0.87	0.74
SF-12: Physical Health	0.94**	0.96**	0.95**	1.00	1.00
SF-12: Mental Health	0.99*	0.99	0.98*	1.01#	0.99
Disability Prevents Work	0.91	1.75**	0.88	1.03	0.95
Residence:	0.91				
Urban (except Portland)	0.65*	0.77	0.85	0.97	1.28
Rural	0.83	0.67*	0.93	1.08	1.23

Table A-1 (continued)

Logistic Regression Results for Utilization by Adults

	Dentist Visit	Prescription Medicine	Mental Health/ Substance Abuse Treatment
Health Insurance	2.22*	2.02*	0.90
OHP	1.66*	3.07**	1.30
Female	1.19	1.64**	1.05
Age:			
26-34	1.09	0.87	2.53**
35-44	0.97	0.50*	2.04*
45-54	0.89	0.86	1.31
55-64	0.66	0.63	0.72
White	1.14	1.44	2.24**
Married	0.96	1.10	0.59*
Employed	0.93	1.20	1.39
Education:			
College	2.27**	1.71*	0.97
High School Grad	1.72**	1.03	0.83
SF-12: Physical Health	1.00	0.95**	1.00
SF-12: Mental Health	1.00	0.98*	0.94**
Disability Prevents Work	0.99	1.54	2.28**
Residence:			
Urban (except Portland	0.73#	0.66#	0.90
Rural	0.79	0.83	0.81

** Significantly different at .01 level.
* Significantly different at .05 level.
# Significantly different at .10 level.

SOURCE: Survey of OHP and Food Stamp beneficiaries, 1998.

Table A-2

Unmet Need Logistic Regressions for Adults

	Specialist Visit	Dental Care	Prescription Medicine	MH/SA Treatment
Health Insurance	0.21**	0.62	0.18**	0.25#
OHP	1.22	0.44**	2.04*	1.83
Female	1.29	0.92	1.92**	0.85
Age:				
26-34	0.76	1.12	1.94#	1.00
35-44	0.89	0.97	1.85#	0.72
45-54	0.66	0.89	1.52	1.04
55-64	0.58	0.78	0.53	0.40
White	1.01	1.36	0.80	0.86
Married	0.80	0.58**	1.02	0.62
Employed	1.40	1.49	1.35	2.31
Education:				
College	0.94	0.67	0.98	1.56
High School Grad	0.78	0.74	0.65#	1.15
SF-12: Physical Health	0.97**	0.98#	0.96**	1.00
SF-12: Mental Health	0.96**	0.97**	0.96**	0.93**
Disability Prevents Work	1.53	0.98	1.37	2.78
Residence:				
Urban (except Portland)	0.74	1.02	0.81	0.69
Rural	1.01	1.50#	0.71#	0.99

** Significantly different at .01 level.
* Significantly different at .05 level.
# Significantly different at .10 level.

SOURCE: Survey of OHP and Food Stamp beneficiaries, 1998.